Perico Preserve

Fallow Fields to Habitat Mosaic

Presentation: July 31, 2014 CEER
Mike Burton, CEP
Acknowledgements

- **Project Team**
  - Manatee County Parks and Natural Resources
  - Stantec
  - CB&I

- **Project Funding Sources**
  - Manatee County Board of County Commissioners
  - Southwest Florida Water Management District
  - Sarasota Bay Estuary Program
  - U.S. Fish and Wildlife Service

- **Volunteers** - Manatee County RIP Squad, SBEP Bay Guardians, TBEP Give a Day for the Bay
Today’s Topics

1. Site
2. Project Concept and Design
3. Implementation
4. Results (so far!)
5. Remaining Activities
1 Site

The canvas upon which habitats are painted!
Site Location
Site History

Pre-Agriculture (<1930)
• Pine flatwoods rimmed with mangroves and coastal wetlands

Agriculture and Mosquitos (>1930 and <2000)
• Varying crops and intensity
• Extensive ditching and diking

The Fallow Years (2000 to 2007)
• Largely unused
• Invasive and nuisance species rule

Rebirth Begins (2007)
• Manatee County acquires property
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Site Description

• 175 acres
• Important Location
• Poor Condition
• High Development Potential
• Rescued in 2010
Project Concept and Design

Habitat restoration – the merging of engineering, science, and art
Project Concept and Design

Key Components

• Habitat Mosaic
• Diversity
• Long-term Management
• Public Use and Education
Project Concept and Design

Habitat Mosaic Concept

- Establish regionally-depleted coastal habitats
- Restore previously existing habitats
- Provide diverse wildlife support
- Create interconnected habitats
Project Concept and Design

Habitat Mosaic Design

• Habitat Creation
  ➢ 12.4 acres - seagrass
  ➢ 4.46 acres - freshwater marsh
  ➢ 3.79 acres - salt marsh
  ➢ 3.59 acres - scrub
  ➢ 0.78 acre - coastal strand hammock
Project Concept and Design

Habitat Mosaic Design

• Habitat Restoration
  - 0.08 acre - salt marsh
  - 2.29 acres - flatwoods/salt marsh transitional
  - 9.48 acres - flatwoods
  - 3.78 acres - maritime hammock
Project Concept and Design

Habitat Mosaic Design

- Habitat Enhancement
  - 1.32 acres - salt marsh
  - 2.64 acres - upland hammock
Project Concept and Design

Diversity

- Fauna - Avian
  - Forage
  - Roosting
  - Nesting
Project Concept and Design

Diversity

• Fauna - Fishery
  • Forage
  • Nursery
Project Concept and Design

Diversity

• Flora
  • 90+ planted species
  • 700+ pounds of native seed
<table>
<thead>
<tr>
<th>Ardisia escallonioides</th>
<th>Aristida stricta</th>
<th>Myrica cerifera</th>
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<tbody>
<tr>
<td>Borrichia frutescens</td>
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<td>Myrsine cubana</td>
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<td>Canna flaccida</td>
<td>Bursera simaruba</td>
<td>Opuntia humifusa</td>
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<td>Cladium jamaicense</td>
<td>Callicarpa americana</td>
<td>Persea barbonia</td>
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<td>Capparis jamaicensis</td>
<td>Pinus clausa</td>
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<td>Caryia glabra</td>
<td>Pinus elliottii var. densa</td>
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<td>Eleocharis interstincta</td>
<td>Chiococca alba</td>
<td>Pinus palustris</td>
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<td>Coccoloba uvifera</td>
<td>Pithecellobium unguis-cati</td>
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<td>Pityopsis graminifolia</td>
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<td>Eragrostis elliottii</td>
<td>Psychotria nervosa</td>
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<tr>
<td>Iva frutescens</td>
<td>Eragrostis spectabilis</td>
<td>Quercus chapmanii</td>
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<td>Juncus effusus</td>
<td>Eryngium yuccafolium</td>
<td>Quercus geminata</td>
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<td>Juncus roemerianus</td>
<td>Erythrina herbacea</td>
<td>Quercus laurifolia</td>
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<td>Lycocham carolinianum</td>
<td>Eugenia axillaris</td>
<td>Quercus minima</td>
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<td>Eugenia fontidea</td>
<td>Quercus myrtifolia</td>
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<td>Nuphar lutea</td>
<td>Ficus citrifolia</td>
<td>Quercus virginiana</td>
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<td>Nymphaea odorata</td>
<td>Forestiera segregata</td>
<td>Rudbeckia hirta</td>
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<td>Panicum hemitomon</td>
<td>Gaillardia pulchella</td>
<td>Sabal palmetto</td>
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<tr>
<td>Pontederia cordata</td>
<td>Glandularia tampensis</td>
<td>Serenoa repens</td>
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<td>Rhynchospora colorata</td>
<td>Gossypium hirsutum</td>
<td>Sideroxylon tenax</td>
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<td>Rhynchospora spp.</td>
<td>Hamelia patens</td>
<td>Solidago sempervirens</td>
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<tr>
<td>Sagittaria lancifolia</td>
<td>Helianthus debilis subsp. vestitus</td>
<td>Sophora tomentosa var. truncata</td>
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<td>Saururus cernuus</td>
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<td>Schoenoplectus robustus</td>
<td>Ilex opaca</td>
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<td>Schoenoplectus tabernaemontani</td>
<td>Juniperus virginiana</td>
<td>Trichostema dichotomum</td>
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<td>Liatris gracilis</td>
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<td>Spartina alterniflora</td>
<td>Lincia michauxii</td>
<td>Vaccinium myrtilloides</td>
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<td>Lyonia lucida</td>
<td>Yucca aloifolia</td>
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<td>Spartina patens</td>
<td>Maytenus phyllanthoides</td>
<td>Zamia pumila</td>
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<td>Sporobolus virginicus</td>
<td>Monardia punctata</td>
<td>Zanthoxylum clava-herculis</td>
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<tr>
<td>Thalia geniculata</td>
<td>Muhlenbergia capillaris</td>
<td>Zanthoxylum fagara</td>
</tr>
</tbody>
</table>
Project Concept and Design

Long-term Management

• Stratum layering
# Project Concept and Design

## Long-term Management

- **Nuisance & exotic control**

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Problem Scale</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cynodon dactylon</td>
<td>Bermuda Grass</td>
<td>10</td>
<td>Scattered throughout</td>
</tr>
<tr>
<td>Cyperus esculentus</td>
<td>Yellow Nutsedge</td>
<td>10</td>
<td>Scattered throughout</td>
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<tr>
<td>Cyperus rotundus</td>
<td>Purple Nutsedge</td>
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<td>Scattered throughout</td>
</tr>
<tr>
<td>Panicum repens</td>
<td>Torpedo grass</td>
<td>10</td>
<td>Scattered throughout</td>
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<tr>
<td>Indigofera hirsuta</td>
<td>Hairy Indigo</td>
<td>9</td>
<td>Scattered throughout</td>
</tr>
<tr>
<td>Dactyloctenium aegyptium</td>
<td>Crowsfoot/Egypt Grass</td>
<td>9</td>
<td>Scattered throughout</td>
</tr>
<tr>
<td>Digitaria spp.</td>
<td>Crab Grasses</td>
<td>8</td>
<td>Scattered throughout</td>
</tr>
<tr>
<td>Hydrilla verticillata</td>
<td>Hydrilla</td>
<td>8</td>
<td>Wetland 1</td>
</tr>
<tr>
<td>Vigna luteola</td>
<td>Hairy Cowpea</td>
<td>8</td>
<td>Scattered</td>
</tr>
</tbody>
</table>

*Notes: Action Plan and monitoring strategies are outlined in the project's management plan.*
Project Concept and Design

Public Use and Education

• Large urban audience – Locals and visitors

• Heavy utilization – 300K+ at Robinson Preserve

• Recreational activities
  • Trails – improved and unimproved
  • Perico Bayou observation
  • Seagrass basin overlook / birding platform
  • Future connection to Robinson Preserve
3 Implementation

Mother nature makes it look EASY!
Challenges and Lessons Learned

• Erosion control – constant battle
• Plant material – availability and quality
• Weather dependent – watering
• Timing – seasons and quantity
Challenges and Lessons Learned

- **Erosion control**
  - Wind erosion
  - Runoff erosion

Solution: Muhly grass cuttings

Solution: Pine straw
Challenges and Lessons Learned

• **Plant material - availability and quality**
  • Uncommon species
  • Inexperienced contractors
  • Poor condition
  • Poor installation
Challenges and Lessons Learned

- **Weather dependent**
  - Supplemental watering
  - Flooded conditions
Challenges and Lessons Learned

• **Timing**
  - Eradication – sufficient time for multiple treatments
  - Seeding – installation time important to most species
4 Results (so far!)

Habitats are well on their way!
Results

- Implementation complete – most phases
- Significant plant survival and recruitment
- Nuisance / invasive control ongoing
Results

Winter 2013
Results
Results
Results
5  Remaining Activities

Let the water flow!
Final Phase

• **Connection of 16 acre freshwater pond to Perico Bayou**

• **12 acres of seagrass habitat**

• **Mangrove creation**

• **Recreational features**

• **Pending U.S. Army Corps Permit**
Final Phase

- Rare seagrass creation project
- Natural recruitment
- Donor planting
Questions?

THANK YOU!

Special thanks for the use of many of his photos to:

Damon Moore
Environmental Program Manager - Ecological Resources
Manatee County Parks and Natural Resources